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ABSTRACT

The study examined how response rate to a mailed questionnaire was influenced by the socioeconomic status (SES) of respondents (high, middle, or low); amount of payment of a monetary incentive (none, $1, or $2); and time of payment (prepaid or promised on return of the completed questionnaire). Subjects were 125 adults in Cache County, Utah at each SES level. Higher payment elicited more returns than lower payment, prepayment elicited more than promised payment, and high-SES subjects returned more questionnaires than low-SES subjects. Also, there was an interaction between SES and payment timing. Prepayment elicited a much higher rate than promised payment for low-SES subjects, while pre- versus promised payment made little difference for high-SES subjects. (Contains 9 references and 3 tables.) (Author/SLD)

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Effects of Respondents' Socioeconomic Status and Timing and Amount of Incentive Payment on Mailed Questionnaire Response Rates

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Abstract

The study examined how response rate to a mailed questionnaire was influenced by socioeconomic status (SES) of respondents (high, middle, or low); amount of payment of a monetary incentive (none, $1, or $2); and time of payment (prepaid or promised upon return of completed questionnaire). Higher payment elicited more returns than lower payment, prepayment elicited more than promised payment, and high-SES subjects returned more questionnaires than low-SES subjects. Also, there was an interaction between SES and payment timing: Prepayment elicited a much higher return rate than promised payment for low-SES subjects, while pre- vs. promised payment made little difference for high-SES subjects.

Effects of Respondents' Socioeconomic Status and Timing and Amount of Incentive Payment on Mailed Questionnaire Response Rates

The mailed questionnaire is one of the most economical methods of data collecting, especially when the target universe for the survey is spread over a large geographical area. The validity of conclusions reached through the use of this instrument is, however, often questionable because of low response rates and the resultant possibility of bias. In trying to overcome this problem, much research has been done on variables thought to influence response rates.

One of the most widely studied of these variables has been the use of monetary incentives, with the general consensus being that their inclusion does succeed in improving response rates (Armstrong, 1975). In variations of this theme, researchers have also looked at differences in response rates related to the amount of the incentive (Doob, Freedman, & Carlsmith, 1973; Schewe & Cournoyer, 1976), and the time of incentive payment (prepayment vs. payment promised on return of a completed survey) (Skinner, Ferrell, & Pride, 1984; Weiss, Friedman, & Shoemaker, 1985). These findings tentatively suggest that prepayment of the incentive results in a higher return rate than a promised payment, and that response rates rise with the amount of the incentive. Unfortunately, most previous work has been marked by such methodological flaws as convenience sampling, confounding of independent variables, and/or failure to conduct a nonresponse bias check, which render findings inconclusive.

Moreover, little research has been done on the socioeconomic status (SES) of the respondent, which has been viewed as a potentially important variable related to the use of

monetary incentives to increase response rates. Given the move away from mass marketing in favor of targeting specific niches, many data gathering efforts are aimed only at specific social strata. It is important, therefore, to understand the influence of SES on response rates, both alone and in conjunction with payment variables.

A review of research by the first author yielded only one prior study of the joint impact of SES and monetary incentives on response rate. Gelb (1975) distributed questionnaires to grocery store shoppers in two neighborhoods, one middle class and one lower class. Half the sample in each store received a questionnaire with 50 cents attached, while half were promised 50 cents upon return of the questionnaire. The rate of return from those offered immediate payment was 54% among middle-class shoppers and 15% among lower-class shoppers. For those promised payment, the return rate was 45% among middle-class shoppers and 25% among lower class shoppers.

While Gelb (1975) is an important study, it does have methodological weaknesses, specifically the use of convenience sampling rather than random sampling. The present study corrects this flaw while measuring the individual and joint effect on response rate of SES, time of incentive payment, and amount of payment. The relative cost effectiveness of various payment methods is also considered.

Method

Population and Sampling

The target population was adult residents of Cache County, Utah. Cache County is in a valley 80 miles north of Salt Lake City and consists of the city of Logan (population 35,000) and surrounding communities and rural areas. Logan is the site of Utah State

University, which is the primary employer in the valley; in addition, dairy farming, ranching, and tourism are other important employment bases in the area.

Because the purpose of the study was to determine the relationship between SES and response rates, the first procedure was to classify subjects into high-, medium-, and low-SES categories. While this could have been done using completed questionnaires, past experience has shown that many respondents return questionnaires with all but the demographic questions answered, making after-the-fact classification impossible. Thus, in order to classify respondents before mailing the questionnaires, SES information was obtained using the following sampling procedure.

Phone survey. A random sample of 700 telephone numbers was selected from the Cache County telephone directory. (While directory sampling is often faulted for its omission of unlisted numbers, this problem affected less than 6% of the county population according to the local telephone company.) The survey had a dual purpose. One was to collect data on citizens' attitudes toward wildlife management. The second purpose, which was pertinent to the present study, was to elicit SES-related information. It had been decided to mail the main survey to 125 subjects in each SES level, for a total of 375; 580 respondents were contacted in the phone survey to ensure reaching this number, based on estimates of noncooperation experienced in prior, similar surveys in this area. The telephone survey was carried out by three undergraduate students trained specifically for this task. During these telephone calls, they obtained the SES data discussed hereafter.

SES Classification. SES indices are usually formed by combining all or any two of the variables education, occupation, and household income. For the present study, education

and household income were used. Scores were assigned to different education and income levels based on their distributions as contained in the Statistical Abstract of the United States (U.S. Department of Commerce,1989) and on procedures used by the Census Bureau (U.S. Bureau of the Census, 1963). Once a respondent's scores for education and income were determined, they were summed to form a composite SES score. A frequency distribution was then plotted for the entire sample and three levels of SES were defined according to naturally occurring clusters. The above procedure resulted in 125 subjects in the high- and low-SES groups, but more than 125 in the middle-SES group. The final selection of 125 in the middle-SES group was then done randomly.

As an external validation of the classification procedure, results were compared with federal poverty standards (U.S. Department of Commerce, 1989). Approximately 92% of subjects in the low-SES group met these standards.

Research Design

The 125 subjects in each SES group (low, middle, and high) were randomly assigned to one of five incentive conditions: prepaid $1, prepaid $2, promised $1, promised $2, or an unpaid control group.

Mail Survey Procedure

A reciprocal arrangement was made with Utah State University's Extension Service, which was interested in conducting a survey of family and economic well-being in Cache County, such that all survey costs were borne by the Extension Service, in exchange for the first author carrying out all survey activities and turning the completed questionnaires over to the Service.

Once the seven-page questionnaire had been developed, a mailing packet was assembled for each subject consisting of the questionnaire, a cover letter, and a business-reply envelope in which to return the questionnaire. The cover letter briefly explained the information requested in the questionnaire and contained a promise of anonymity. The letter also explained either the promise or presence of the monetary incentive, whether payment was being made now or was promised for later, and the amount of the incentive. For the appropriate groups, the packet also included the amount of monetary incentive that constituted the experimental treatment. The cover letter was printed on Extension Service stationery and was signed by Extension Service officials.

Respondents were given approximately 3 weeks to reply, by which time the return rate had dropped to one or two per day. Though Extension Service officials carried out two follow-up mailings, the present study used only responses to the first mailing.

Results

Table 1 shows the percentage of questionnaires returned for each experimental condition at each SES level.

Insert Table 1 about here

Data were coded dichotomously: Either the subject returned or did not return the questionnaire. These data were then analyzed in a 3 (SES levels) x 2 (amount of payment) x 2 (time of payment) fixed factors ANOVA, using the SPSS computer package. (The control group was not included in this analysis, because it has empty cells -- the "zero" amount of

payment group cannot be divided into two time-of-payment levels. The control group was used, however, in some post-hoc analyses to be discussed later.) The ANOVA results are summarized in Table 2.

Insert Table 2 about here.

Tests of the main effects revealed that the return rate differences for amount of payment and time of payment were statistically significant at $p < .05$ and $p < .001$, respectively, with the higher amount and the prepayment resulting in higher return rates. The return rates for the three SES levels also differed to a statistically significant degree at $p < .01$; a post-hoc Tukey test revealed that the difference in return rates for the high (72%) and low (48%) SES groups was the source of the statistical significance.

As Table 3 shows, when the return rates are collapsed across incentive amounts, (i.e., $1 and $2 groups are combined), the time of payment appears to have had little effect on the return rate for high-SES subjects. However, timing was found to have a substantial effect on the return rates for middle and low-SES subjects, with prepaid subjects returning a far higher percentage of questionnaires than those promised payment.

Insert Table 3 about here

Tests of the two-way interactions showed a statistically significant interaction between SES and time of payment, and post-hoc tests of simple main effects revealed that the effect

of time of payment was not statistically significant for the high-SES group, but was statistically significant for the middle-SES and low-SES groups ($F = 5.02$, $p < .03$, and $F = 14.78$, $p < .001$, respectively).

The three-way SES by Time by Amount interaction was not statistically significant; pooling the three-way sum of squares into the error sum of squares did not affect any of the results with respect to statistical significance.

Discussion

The present study reaffirms what previous research has shown in that each of the three independent variables studied -- SES, amount of payment, and timing of payment -- was related to response rates to mailed questionnaires. However, the present study has extended previous work by using methodology based on random samples and a design that explored all main effects and interactions.

An important finding was the interaction between SES and time of payment: High-SES subjects returned the questionnaires at a similarly high rate whether the payment was made in advance or promised, but for middle- and low-SES subjects, prepayment elicited a higher rate of return. The difference in return rates based on timing of payment was particularly large for low-SES subjects (66% for prepaid vs. 30% for those promised payment).

These findings have obvious implications for survey researchers working with populations that include people of lower socioeconomic status: prepaying the incentive can boost response rates to levels comparable to those of high- and middle-SES populations, while promising later payment of $1 or $2 (upon return of a completed survey), is no better

-- and perhaps worse -- than not paying at all. For high-SES groups, it is questionable whether one needs to pay an incentive at all; in the present study, high-SES subjects who were paid had a 72% return rate, compared with 60% for unpaid controls, a substantial difference. However, at the sample size used in the present study, the difference was not statistically significant at $p < .05$. Further research on high-SES populations should clarify this issue. In mixed-SES populations, tailoring incentives to respondents' SES level might be seen as a way to maximize cost-effectiveness, although this raises ethical issues as well as internal validity problems.

This study is not without limitations. The final sample was selected only if they answered SES-related questions in the prior telephone survey; although most respondents did answer these questions, the fact that some chose not to makes this technically a volunteer sample. Also, although all that was affordable in the present study, 25 subjects per cell is a relatively small sample size. Finally, the mailed questionnaire was seven pages long; it is possible that the effects of SES, amount of payment, and timing of payment on response rates would be different for a shorter questionnaire. Dillman (1978), however, has reported that questionnaires up to 12 pages long do not adversely affect response rates.

Future research in this area might focus on replicating the findings using different questionnaire lengths and/or topics, different incentive levels, and populations from more urban settings and from different geographic regions.

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Table 1.

Percent returned by SES, time of payment, and amount of payment

	Prepaid		Promised			
SES	$1	$2	$1	$2	Control	Overall
High	68	80	64	76	60	70
Middle	68	68	40	52	52	56
Low	60	72	20	40	32	45
Overall	65	73	41	56	48	57

Note: Percentages based on n = 25 per cell.

Table 2.

ANOVA results for effects of SES, amount of payment, and time of payment on rate of return

Factor	SS	df	MS	F	p
SES	3.41	2	1.70	7.78	.001
Amount	.96	1	.96	4.40	.037
Time	3.63	1	3.63	16.58	.000
SES x Amount	.13	2	.06	.29	.749
SES x Time	1.62	2	.81	3.70	.026
Amount x Time	.08	1	.08	.38	.538
SES x Amount x time	.05	2	.02	.11	.899
Residual	63.04	288	.22		
Total	72.92	299	.24		

Table 3.

Percent returned by SES and time of payment, collapsed across incentive amount.

SES	Prepaid	Promised
High	74	70
Middle	68	46
Low	66	30

Note. Percentages based on n = 50 per cell.